

## Place of Articulation shifts: A gradual road to the unmarked

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This paper investigates the Place of Articulation (PoA) shift phenomena found in the diachrony of several languages, mainly regarding heterosyllabic consonant sequences. In particular, consonants in coda positions seem to change their PoA along the path dorsal > labial > coronal, which mirrors the PoA markedness hierarchy Dorsal >> Labial >> Coronal (de Lacy 2002, 2006; Lombardi 2002). Building on this assumption, the present analysis aims at capturing not just the changes resulting in absolute unmarkedness, but also intermediate steps, along the lines of *Optimality Theory* (OT, Prince & Smolensky 1993/2004). The typological differences are accounted for in terms of *Property Theory* (Alber & Prince 2015; Alber, DelBusso & Prince 2016).

### The data

Diachronic PoA shifts are observed cross-linguistically, especially with regard to coda consonants. For example, Latin dorsals have become labials in coda position in all Romanian dialects (Nandris 1963; Rosetti 1965; Densusianu 1975; Sala 1976; Seigneur & Pagliano 2003):

- (1) Latin no[k]te ‘night’
- |    |                     |                     |
|----|---------------------|---------------------|
| a. | Daco-Rom./Aromanian | noa[p]te            |
| b. | Megleno-Romanian    | noa[p]ti ~ noa[f]ti |
| c. | Istro-Romanian      | no[p]te             |

Moreover, labialization of dorsals is found in Vegliotian Dalmatian (2a) (Densusianu 1975), in Albanian, regarding Latin loanwords (2b) (Nandris 1963; Rosetti 1965; Densusianu 1975), and in Italiot Greek, especially in the dialects of Salento (2c) (Rohlf's 1950; Karanastassis 1997; Tzitzilis 2004):

- (2)
- |    |                 |               |                  |
|----|-----------------|---------------|------------------|
|    | <i>Dorsal</i>   | <i>Labial</i> |                  |
| a. | Vegl. Dalmatian | o[k]to        | gua[p]to ‘eight’ |
| b. | Albanian        | lu[k]ta       | lu[f]të ‘light’  |
| c. | Salent. Greek   | o[x]to        | o[f]to ‘eight’   |

At a later stage, Salentinian Greek moved a step further and turned all pre-consonantal labials into coronals (3). Similarly, Italiot Greek dialects spoken in Calabria are synchronically found to have neutralized pre-consonantal dorsals and labials into coronals as well (4) (an intermediate dorsal > labial stage is scatteredly reported, yet poorly documented).

- (3) Salent. Greek *b*
- |    |                     |               |                |         |
|----|---------------------|---------------|----------------|---------|
| a. | etymological labial | <i>Labial</i> | <i>Coronal</i> | ‘seven’ |
| b. | former dorsal       | e[f]ta        | i[t]ta         | ‘eight’ |
|    |                     | o[f]to        | o[t]to         |         |
- (4) Calabr. Greek
- |    |                 |                |                |         |
|----|-----------------|----------------|----------------|---------|
| a. | Bova variety    | <i>Dor/Lab</i> | <i>Coronal</i> | ‘seven’ |
| b. | Bova variety    | e[f]ta         | e[s]ta         | ‘eight’ |
| a. | Rochudi variety | o[x]to         | o[s]to         | ‘seven’ |
| b. | Rochudi variety | e[f]ta         | e[θ]ta         | ‘eight’ |
|    |                 | o[x]to         | o[θ]to         |         |

### The proposal

We maintain that the dorsal (K) > labial (P) > coronal (T) shift is driven by a preference for less marked codas (see Paradis & Prunet 1991 and references therein). Within the framework of OT (Prince & Smolensky 1993/2004), we build on de Lacy's (2002) subset inclusion constraints that reflect the PoA markedness hierarchy (i.e. \*K, \*{KP}) and combine them with Zoll's (1996) theory of positional markedness. Thus, we posit \*K/CODA and \*{KP}/CODA, that are violated when a segment of particular

specification with respect to its PoA is realized in a coda position. A faithfulness constraint is taken to interact with the markedness constraints, thus giving rise to different languages or stages of a language. Crucially, employing a categorical constraint IDENT[place] (à la de Lacy 2002) fails to account for the K > P shift, as T harmonically bounds the unfaithful output P. Therefore, we postulate a gradiently violated faithfulness constraint POASHIFT (PAS). More specifically, we take every step along the K > P > T scale to be translated into an asterisk on PAS.

Based on the proposed constraint system, a factorial typology is yielded that includes three types of languages: (a) one in which every consonant is realized faithfully with respect to its PoA, which corresponds to the initial stage of the languages under investigation; (b) one where dorsals get labialized, but labials and coronals remain intact, which captures the changes illustrated in (1–2); and (c) one in which neutralization of all PoAs to the coronal is found, which is demonstrated in (3–4). Any leftward shift along the K > P > T scale, e.g. T > K, is harmonically bounded, given the stringency relation between the markedness constraints.

Factorial typology		
Optimal candidates	Ranking	Languages
(a) K → K, P → P, T → T	<b>PAS</b> >> *K, *{KP}	Every PoA in codas
(b) <b>K</b> → <b>P</b> , P → P, T → T	*K >> <b>PAS</b> >> *{KP}	Only labials and coronals in codas
(c) <b>K</b> → <b>T</b> , <b>P</b> → <b>T</b> , T → T	*{KP} >> <b>PAS</b>	Only coronals in codas

The cross-linguistic variation as well as the diachronic evolution of each language is formalized by means of Property Theory, according to which a typological system is built on *properties*, that is the sufficient and necessary ranking conditions which are freely combined with each other and generate every language of the system (Alber & Prince 2015; Alber, DelBusso & Prince 2016). In our particular case, what determines each language type is the combinations of the values of property PAS <> \*K/CODA, on the one hand, and property PAS <> \*{KP}/CODA, on the other hand. The gradual passage from one stage/type to another –minimally different– stage/type is therefore captured as a minimal switch in the typological property values that hold for each language type.

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